
FIGURE 22. *Photographs show the effort to harden the shoreline around the base of the Cape Hatteras Lighthouse starting in 1969 with a groin field (Panel A), and with steel sheet-pile bulkhead, rock revetment, and many sandbags by 1975 (Panel B). Landward relocation finally occurred in 1999 (Panel C). All photographs are by S. Riggs.*

Banks, areas of future inlet-opening potential have been mapped. This and other data sets can be explored at http://www.coastal.geology.ecu.edu/NCCOHAZ/.

## Relocation

In North Carolina, one of the earliest ocean-front developments, which began after the Civil War in the area of Old Nags Head, was characterized by very deep lots to allow for the systematic relocation of the houses as the shoreline retreated (Fig. 21A). Most of these early houses were moved landward several times during the 20th century. They are now adjacent to NC Highway 12 and cannot be moved further (Fig. 21B). In 1999, the Cape Hatteras Lighthouse was finally relocated 1600 feet inland after many futile efforts from 1969 to 1999 to combat coastal erosion. Relocation (Fig. 22) can be considered for all buildings that occur in the high-hazard ocean-front and inlet zones.

Within the southeastern portion of the North Carolina coast, the barrier island segments from Onslow Beach southward to Carolina Beach (Fig. 1) are sediment poor, dominated by numerous small and migrating inlets, and are in a general state of shoreline recession. The heavily developed, sediment-poor islands include Topsail, Figure 8, Shell Island, Wrightsville Beach, Carolina Beach, and Kure Beach to Fort Fisher. Communities along the ocean and inlet hazard zones have only been able to partially protect their property from sea-level rise and storm activity; they are dependent upon regular beach nourishment projects or hardened structures. However, as sea level continues to rise and sand supplies are diminished, the economic cost of beach nourishment will increase substantially and dictate the need to begin relocation.